

USSR

KABAKOV, V. A., Vopr. tekhn. i inform. obespecheniya ASU, Novosibirsk, 1971, pp 34-37

where  $\varphi_a(x, y) = 1, a < x < y; 0$  otherwise. A conventional algorithm of stochastic approximation is then used to find  $y$ . It is pointed out that the multi-dimensional analog of this problem can be solved. A scheme is also given for applying the method of stochastic approximation to constructing a histogram of multidimensional distribution. B. Granovskiy.

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UDC 532.529.5

KABAKOV, V. I. and ALAD'YEV, I. T.

"Trajectory and Depth of Penetration of Liquid Jets in a Two-Phase Flow"

V sb. Dvukhfazn. potoki i vopr. teploobmena (Two-Phase Flows and Problems in Heat Transfer--collection of works), Moscow, "Nauka", 1970, pp 25-31 (from Referativnyy Zhurnal-Aviatsionnyye i raketnyye dvigateli, No 12, Dec 70, Abstract No 12.34.142)

Translation: Certain physical phenomena occurring in injectors used in power plants upon condensation are examined. A semiempirical theory is presented, describing the trajectory and depth of penetration of liquid sprayed into a transverse vapor-liquid flow. Illustrations: 6. Tables: 1. Bibliography: 10 entries.

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UDC 621.382.002

GERMAN, YU. I., YEVSEYEV, YU. A., KABAKOV, V.L., RABINERSON, A.A., CHESNOKOV, YU.A.

"Evaluation Of The Effectiveness Of Clamped Contact Connections For Semiconductor Power Devices During Operation In A Regime Of Pulse Overload By Forward Current"

Preobrazovatel'n. tekhnika. Inform. nauchno-tekhn. sb. (Converter Technology. Information Scientific-Technical Collection), 1970, No 3, pp 4-8 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B395)

Translation: In addition to the reduction of superheating, replacement of soldered contacts by clamped contacts relieves the silicon wafer from the thermoelectromotive forces, which makes it possible to increase its overload capacity. The effectiveness of Si-Cu and W-Cu clamped contacts of dissimilar fulfillment were evaluated in a regime of pulse overload by a comparison of the experimental and theoretical values of the temperature of superheating of a p-n junction in the process of cooling the structure after the action of an individual semisinusoidal pulse of forward current. The overload capacity of devices with clamped contacts for TT-2 thyristors was increased 1.4 times on the average in comparison with devices having soldered contacts and thermocompensators. 5 ref. G.I.

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Nuclear Science and Technology

USSR

UDC: 539.12.08

DMITRIYEVSKIY, I. M., ~~KABAKOV, Ya. I.~~, FROLOV, V. V., POTEMKIN, Ye. L.

"Tissue Doses of High-Energy Nucleons (up to 30 GeV)"

Moscow, Atomnaya Energiya, Vol 32, No 6, Jun 72, pp 465-470

Abstract: At the present time there are almost no data on the dose characteristics of high-energy nucleons, which means that there are no scientifically based data on the maximum permissible fluxes for emission of this type. Existing computations are based on the Monte-Carlo method and have been done for nucleons with energies of less than 2 GeV. Extension of methods of this type to higher energies involves difficulties due to the lack of information on the differential characteristics of nuclear interaction between nucleons and the elements of biological tissue. A simple method is proposed in this paper for calculating the depth distribution of absorbed and equivalent doses of high-energy nucleons normally incident on a tissue-equivalent phantom in the form of a plate 30 cm thick with infinite transverse dimensions. The distribution function for shower particles on the phantom is found by a perturbation theory method, using

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DMITRIYEVSKIY, I. M. et al., Atomnaya Energiya, Vol 32, No 6, Jun 72, pp 465-470

the angular and energy distributions of the shower particles in the Trilling formula. The averaged characteristics of nuclear interaction (average multiplicity of secondary particle production, average energy of excitation of residual nuclei, and so forth) are used for conversion from the distribution function found for the shower particles to dose distributions. This approach cuts down appreciably on the volume of computations and is justified in that existing theories of nuclear interaction and experiments give the most reliable data in just this case (i. e., averaged characteristics). Besides, the very concept of dose involves an averaged characteristic. Depth dose distributions are found for protons and neutrons with energies of 3, 5, 10, 20, and 30 GeV. The dose approximately doubles with an energy increase from 3 to 30 GeV. The results agree with calculations of other authors for energies up to 3 GeV.

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UDC: 621.391.17:621.396.671.3

OLIFEN, L. K. (Deceased), BUKHVINER, V. Ye., GUREVICH, R. V., and KABAKOVA, A. G.

"Comparison of Receiver Antenna Noise Immunities"

Moscow, Radiotekhnika, No. 6, 1970, pp 66-71

Abstract: The article compares the noise protection provided by antennas 3BS-2 and BS-2, high-frequency antennas used in Soviet broadcasting networks. The BS-2 is recommended as standard for a main radio line 3000 km in length, but has relatively poor noise immunity; the more complex 3BS-2, made up of three BS-2's one behind the other, gives better noise immunity. The measurements on which the comparison is based were made repeatedly and by various means, in 1959-1960, 1966, and more recently. The results of the measurements and descriptions of the procedures and instruments involved are presented. Four of the major results are listed: on practically all frequencies of the shortwave range, the noise immunity of the 3BS-2 was from 1.3 to 3 times that of the BS-2 in Network I; similar results were obtained on Network II; the coefficient of ionic dispersion for network I with a horizontal vibrator was 4-7.5 times less with the 3BS-2 and 3-6 times less with the BS-2; the reliability of communication of the 3BS-2 may exceed that of the BS-2 by as much as 20%.

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Refractory Materials

USSR

UDC 666.764.32.001.5

KABAKOVA, I. I., DEGTYAREVA, E. V., and KAYNARSKIY, I. S.,  
Ukrainian Scientific Research Institute of Refractories

"Extra-Compact Corundum Refractories"

Moscow, Ogneupory, No 1, Jan 71, pp 30-36

Abstract: The article describes a technique which has been developed for the fabrication of extra-compact corundum products from granulated uncalcined briquette, fabricated entirely from finely pulverized uncalcined commercial alumina. The products have a porosity of less than 3 percent, good thermomechanical properties, creep strength, and resistance to reduction by carbon at high temperatures. Calcining conditions and charging methods were determined for products with a linear calcination shrinkage of up to 20 percent. It was found that corundum products can be calcined from granulated stock in a single-row charge according to an accelerated regime lasting about 45 hours, including hold-

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KABAKOVA, I. I., et al., Ogneupory, No 1, Jan 71, pp 30-36

ing and cooling, as well as in a four-row-high charge in a two-stage process at 1300 and 1750° C. An experimental batch of checker-type products was produced, with none of the products displaying deformation despite shrinkage reaching 19.8-21.2 percent (linear).

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1/2 030 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CORUNDUM REFRACTORIES -U-  
AUTHOR-(03)-KAYNARSKIY, I.S., DEGTYAREVA, E.V., KABAKOVA, I.I.  
COUNTRY OF INFO--USSR  
SOURCE--OGNEUPORY 1970, 35(4), 46-53  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CORUNDUM REFRACTORY, COMPRESSIVE STRENGTH, GRAIN STRUCTURE,  
THERMAL CONTRACTION, THERMAL CONTRACTION, THERMAL STABILITY, CARBON,  
ANNEALING, REFRACTORY PRODUCT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/0629 STEP NO--UR/0131/70/035/004/0046/0053  
CIRC ACCESSION NO--AP0134391  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--2/NOV70

CIRC ACCESSION NO--AP0134391

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS IS ESSENTIALLY A REVIEW WORK PLUS NEW DATA AND RECOMMENDATIONS CONCERNING A NO. OF ASPECTS OF CORUNDUM REFRACTORIES. AMONG THE ITEMS COVERED ARE THE FOLLOWING: DEPENDENCE OF THE AL SUB2 O SUB3 CONTENT IN THE ARTICLES ON THE ADDN. OF TECH. GRADE ALUMINA TO NATURAL RAW MATERIAL CONTG. 35, 40, AND 45PERCENT AL SUB2 O SUB3; COMPRESSION STRENGTH OF CORUNDUM PRODUCTS; CHANGE IN THE GRAIN COMPN. OF BALL BRIQUET MADE OF FINE GROUND ALUMINA AFTER FIRING IN A LAB. ROTARY FURNACE AT VARIOUS TEMPS.; DEPENDENCE OF THE SHRINKAGE OF SUCH A BRIQUET ON THE FINAL FIRING TEMP. AT VARIOUS HOLDING TIMES; SHRINKAGE DURING 2-STAGE ANNEALING (1300 AND 1750DEGREES) OF SPECIFIC DENSE CORUNDUM ARTICLES MADE OF GRANULATED BODIES; TABULATION OF PROPERTIES AND CHARACTERISTICS OF CORUNDUM CERAMICS; DEPENDENCE OF HEAT COND. COEFFS. OF CORUNDUM REFRACTORIES ON THEIR AV. HEATING TEMP. AND THE POROSITY; THERMOMECH. PROPERTIES OF CORUNDUM REFRACTORIES; AND THERMOPHYS. PROPERTIES AND STABILITY TO C OF CORUNDUM REFRACTORIES. FACILITY: UKR. NAUCH.-ISSLED. INST. OGNEUPOROV, KHARKOV, USSR.

UNCLASSIFIED

1/3 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT SOME TECHNOLOGICAL PARAMETERS ON THE PROPERTIES OF CORUNDUM  
REFRACTORIES -U-  
AUTHOR-(03)-KAYNARSKIY, I.S., DEGTVAREVA, E.V., KABAKOVA, I.I.  
COUNTRY OF INFO--USSR  
SOURCE--OGNEUPORY 1970, 35(2), 46-54  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--REFRACTORY MATERIAL, BLAST FURNACE, GRAIN SIZE, CORUNDUM  
REFRACTORY, TITANIUM OXIDE, POROSITY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1805 STEP NO--UR/0131/70/035/002/0046/0054  
CIRC ACCESSION NO--AP0118772  
UNCLASSIFIED

2/3 016 UNCLASSIFIED PROCESSING DATE--30OCT70  
 CIRC ACCESSION NO--AP0118772  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE FOLLOWING FACTORS WAS STUDIED: (1) TEMP. OF FIRING OF THE RAW GROG; (2) ADDN. OF TIO SUB2 TO THE MIXT.; (3) GRAIN COMPN. OF THE GROG, (4) THE RATIO GRAINY GROG: POWD. GROG (AS BINDER) ON THE D., STRENGTH, AND CREEP OF SINTERED CORUNDUM REFRACTORIES. BY DECREASING THE FIRING TEMP. OF THE RAW GROG FROM 1700 TO 1300DEGREES ITS POROSITY INCREASES, BUT THE POROSITY OF PRODUCTS, PREPD. FROM THE GROG, INCREASES. THE EFFECT OF THE GRAIN COMPN. IS RELATED WITH THE D. OF PACKAGING OF THE GRAINS. BEST RESULTS ARE OBTAINED WITH A MIXT. OF 45-65PERCENT COARSE GRAINS, IS SMALLER THAN 10PERCENT GRAINS OF MEDIUM SIZE, AND THE REST BINDER, CONSISTING OF FINE GROG POWDER. VARIATION OF THE SIZE OF THE COARSE GRAINS HAS LESS EFFECT THAN A VARIATION OF THE AMT. OF BINDER. DECREASE OF THE ANNEALING TEMP. OF THE RAW GROG LEADS TO AN INCREASE OF SHRINKAGE. THE SUBSTITUTION OF BURNED GROG BY UNBURNED GROG AS BINDER DOES NOT GIVE SATISFACTORY RESULTS, AND LEADS TO A DECREASE OF THE LIMIT OF SOLIDITY UNDER LOAD. ADDN. OF 0.5PERCENT TIO SUB2 DECREASES THE POROSITY AND INCREASES THE APPARENT D. OF GROG, OBTAINED BY FIRING AT 1300-1500DEGREES, BUT ITS D. IS SMALLER THAN THAT OF GROG WITHOUT TIO SUB2, BUT FIRED AT 1750DEGREES. ADDN. OF TIO SUB2 DECREASES THE COMPRESSIVE STRENGTH BY INCREASE OF THE CORUNDUM CRYSTALS. ADDN. OF TIO SUB2 ALSO DECREASES THE SHRINKAGE DURING SINTERING, AND AT THE SAME TIME DIMINISHES THE STRENGTH OF THE SINTERED OBJECTS. VARIATION OF THE FIRING TEMP. OF THE RAW GROG FROM 1300 TO 1750DEGREES DOES NOT EFFECT THE CREEP OF THE OBJECTS, SINTERED THEREFROM AT 1700DEGREES FOR 8 HR.

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118772

ABSTRACT/EXTRACT--SMALL TIO SUB2 ADDNS. DECREASE THE CREEP OF  
REFRACTORIES, PREPD. FROM GROG, FIRED AT 1300-1500DEGREES, AS A  
CONSEQUENCE OF A MORE INTENSIVE RECRYSTN. A DECREASE OF THE FIRED TEMP.  
OF CORUNDUM OBJECTS INCREASES THEIR CREEP. FORMULATIONS ARE GIVEN FOR  
THE PREPN. OF OBJECTS WITH SMALLER THAN 2, 2.1-5, 5.1-9, 81.-12,  
12.1-18, AND GREATER THAN 18PERCENT POROSITY. THE SINTERED CORUNDUM  
REFRACTORIES CAN BE USED IN AIR HEATED BLAST FURNACES. FACILITY:  
UKR. NAUCH.-ISSLED. INST. OGNEUPOR., KHARKOV, USSR.

UNCLASSIFIED

USSR

LITYAGINA, L. M., ~~KABALKINA, S. S.~~, and VERESHCHAGIN, L. F., Institute of High-Pressure Physics, Academy of Sciences USSR

"Conditions for Formation and Existence of  $MnF_2$  Phase With  $\alpha$ - $PbO_2$  Structure"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 669-672

Abstract: For purposes of studying conditions for the appearance and existence of an  $\alpha$ - $PbO_2$  phase, a detailed study was made of the crystal structure of  $MnF_2$  with an initial rutile-like structure during isothermal pressure reduction from 70 kbars to atmospheric pressure at 400, 300, and 25° C. A high-pressure X-ray camera with external heating was used, making it possible to obtain powder diagrams. NaCl was added to the investigated  $MnF_2$  samples. The following phase transitions were observed: distorted fluorite  $\rightarrow$  fluorite  $\rightarrow \alpha$ - $PbO_2$  at 300 and 400° C, distorted fluorite  $\rightarrow \alpha$ - $PbO_2$  at 25° C.

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LITYAGINA, L. M., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 62, No 2, Feb 72, pp 669-672

To study the possibility of transformation from  $\alpha$ - $\text{PbO}_2$  to a fluorite structure, the  $\alpha$ - $\text{PbO}_2$  phase obtained by reducing pressure was subjected to the reapplication of high pressure in the same sample. The results indicate transitions in reverse: viz.,  $\alpha$ - $\text{PbO}_2 \rightarrow$  fluorite  $\rightarrow$  distorted fluorite at 300 and 400° C,  $\alpha$ - $\text{PbO}_2 \rightarrow$  distorted fluorite at 25° C. The appearance and existence of the  $\alpha$ - $\text{PbO}_2$  phase under these conditions are due to the action of shear stresses which occur in the sample on removal of the load or on reloading.

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USSR

UDC 539.89

KABALKINA, S. S., SHCHERBAKOV, M. O., VERESHCHAGIN, L. F., Academician, Institute of High Pressure Physics of the Academy of Sciences USSR

"On the Question of Polymorphous Transformation in AgCl at High Pressure"

Moscow, Doklady Akademii Nauk SSSR, Vol. 193, No. 5, 11 Aug '70, pp 1015-1018

Abstract: X-ray studies of the effect of high pressure on the crystalline structure of AgCl showed that the crystalline structure of the high-pressure phase of AgCl II is most likely a distorted version of a rhombic structure of the HgO type. The diffraction picture obtained in the experiment shows that the rhombic structure is closer to the experiment than the B9 structure. There was not a complete analogy in this case, however: the diffraction pictures differ in that strong reflections on HgO (210), (201), and (221) were either very weak or entirely unobserved in AgCl II pictures; analysis of interatomic distances shows that the position of atoms in both structures cannot be the same. The distances between neighboring atoms of Ag and Cl in AgCl II would be 2.25 Å in a chain and 2.7 and 3.4 Å in different chains. The corresponding values between atoms of Hg and O in HgO were equal to 2.03, 2.86, and 2.86 Å. With complete structural similarity one would expect one distance 2.3 Å and two different distances 3.1-3.3 Å in AgCl II. The authors note that it is still impossible to determine the true nature of the distortion, due to the limited amount of roentgenographic data.



Acc. Nr: AP0043584 KABALKINA SS  
Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 2, pp 486-493

INVESTIGATION OF THE CRYSTAL STRUCTURE OF THE ANTIMONY  
AND BISMUTH HIGH PRESSURE PHASES

S. S. Kabalkina, T. N. Kolobyanina, L. F. Vereshchagin

On basis of the similarity of the behaviour of  $Al^{IV}B^{VI}$  compounds and that of elements of the V<sup>th</sup> group at high and normal pressures it is suggested that the SbIII and BiIII high pressure states crystallize in a monoclinally distorted SnS structural type. For  $p$  equal to 130—160 kbars the SbIII unit cell parameters are  $a = 5.56$  Å,  $b = 4.04$  Å,  $c = 4.22$  Å,  $\beta = 86^\circ$ ,  $Z = 4$ ,  $V = 93.8$  Å<sup>3</sup>. For  $p = 35.5$  kbars the parameters of the BiIII monoclinical cell are  $a = 6.65$  Å,  $b = 4.20$  Å,  $c = 4.65$  Å,  $Z = 4$ ,  $\beta = 85^\circ 20'$ ,  $V = 117.8$  Å<sup>3</sup>. Two symmetrically independent Sb<sub>1</sub> and Sb<sub>2</sub> atoms are in the  $m$  plane of the  $C_{2h} - P2_1/m$  space group. The SbIII (BiIII) structure is assumed to be lamellar. The layers consist of two covalent — bound, slightly goffered, planes. The interatomic distances correspond to a coordinate number of seven.

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UDC 541.18.04:547.1'113

NATROSOV, YA. I., KULAKOV, K. ZH., ARKHIPOVA, I. I., LITVIN', SA. YA.,  
and KARANOVICH, M. I., Institute of Hetero-Organic Compounds, USSR Academy of  
Sciences

"Acid-Base Properties of Substituted Tetraphenyl-Methylene-Diphosphine Dioxides"

Moscow, Izvestiya Akad. Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72,  
pp 199-201

Abstract: Potentiometric titration with perchloric acid of the dioxides  
of tetraphenylmethylenediphosphines substituted in the methylene bridge  
was carried out in nitromethane. The obtained values of the acidity  
constant  $K_a$  ( $C_6H_5$ ) were found to be linearly related to the  $\sigma$ -con-  
stants of the substituents.

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USSR

UDC 633.695.7

KABANETS, I. F.

"The Effect of the Degree of Surface Roughness of a Baffle on Suction Force"

Uch. zap. Tsentr. aerogidrodinam. in-t (Science Notes of the Central Power-Hydrodynamics Institute), 1972, 3, No 6, pp 143-148 (from RZh-34. Aviatzionnyye i Raketnyye Dvigateli, No 4, Apr 73, Abstract No 4.34.4)

Translation: Results are presented from measuring the suction force on a disc using tensometric scales where the disc is fixed in shear plane of the nozzle, parallel to the baffles whose surfaces exhibit a differing degree of uniformly distributed granular roughness. The distribution of pressure is shown on the surface of the disc where the disc surface is turned to the baffle. Photographs are given for the spectrum of the flow into the space between the baffle and the disc. A velocity profile is also given for the wall flow for various degrees of baffle surface roughness. Original article: 7 illus. and 4 bibl. Resume.

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USSR

UDC 541.6:541.57:547.1'118

LANDAU, M. A., FOKIN, A. V., KABANKIN, A. S.

"Quantum Chemical Calculations of Some Compounds of Tetra and Pentacoordinate Phosphorus by the CNDO Method"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2486-2490

Abstract: The CNDO method with the parameters described by J. A. Pople, et al., [*J. Chem. Phys.*, No 43, 136, 1965; No 44, 3289, 1966; No 47, 158, 1967; *J. Amer. Chem. Soc.*, No 90, 3309, 1968] was used to calculate 6 molecules of 4-coordinate phosphorus for which the geometric characteristics have been experimentally determined:  $P(O)HF_2$ ,  $PO(CH_3)_3$ ,  $P(O)(OH)(CH_3)_2$ ,  $P(O)(NH_2)_3$  and also  $P(C)F_3$  and  $P(O)(CH_3)_3$ . For the last two molecules in the preceding calculations inexact geometric parameters were used and data were not presented on the populations of the individual atomic orbitals which are used in the present paper to calculate the paramagnetic component of the magnetic shielding constant of the  $^{31}P$  nucleus. In the case of the  $P(O)(NH_2)_3$  special attention was given to the fact that according to the x-ray diffraction data [*G. L. Eutlen, et al., J. Chem. Soc., A*, 1804, 1969], one of the P-N bonds is 0.01 Å shorter than the 1/3

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LANDAU, M. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2486-2490

other two. Five molecules of 5-coordinate phosphorus having trigonal-bipyramidal structure were also calculated. In the calculation the actual configuration was used taking into account the deviation in certain cases of the  $F_ePF_a$  angle from  $90^\circ$  ( $F_e$  denotes the equatorial fluorine atom in the trigonal bipyramid, and  $F_a$ , the axial fluorine atom):  $HPF_4$ ,  $CH_3PF_4$ ,  $(CH_3)_2PF_3$ ,  $PF_5$  and  $(CH_3)_3PF_3$ . Tabulated data are presented showing the results of calculating the  $POF_3$  molecule by the CNDO method compared with the results of the nonempirical calculations. The relative variation of the charges of the different atoms in the molecule calculated by both methods has the same nature. The calculated charges of the atoms, the dipole moments and energies of the boundary orbitals of the 4 and 5-coordinate phosphorus molecules are also tabulated. In the case of fluorophosphoranes, consideration of the d-orbitals of phosphorus leads to better comparison of the calculated dipole moments with their experimental values.

The quantum chemical calculation of the six 4-coordinate phosphorus

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USSR

LANDAU, M. A., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, 1973, pp 2486-2490

molecules and five 5-coordinate phosphorus molecules revealed individual details about the mechanism of certain reactions of these compound sand the variation of their reactivity.

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1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--RADICAL COPOLYMERIZATION OF TETRAFLUOROETHYLENE WITH ETHYLENE AND  
HEXAFLUOROPROPYLENE -U-  
AUTHOR-(03)-KABANKIN, A.S., BALABANOVA, S.A., MARKEVICH, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER A 1970, 12(2), 267-72  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--COPOLYMERIZATION, POLYTETRAFLUOROETHYLENE, ETHYLENE,  
PROPYLENE, FLUORINATED ORGANIC COMPOUND, PHOTOPOLYMERIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/1197 STEP NO--UR/0459/70/012/002/0267/0272  
CIRC ACCESSION NO--AP0104563  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104563

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RELATIVE REACTIVITIES OF C SUB2 H SUB4 AND C SUB2 F SUB4 IN PHOTOINITIATED COPOLYMER. AT LOW PRESSURE ARE 0.38 AND 0.1 IN THE GAS PHASE AND 0.61 AND 0.024 IN (F SUB3 CCF SUB3) SUB3 N SOLN., RESP. THE DIFFERENCE IS ATTRIBUTED TO HETEROGENEITY OF THE MEDIUM. THE VALUES ARE USED TO PREP. C SUB2 H SUB4-C SUB2 F SUB4 COPOLYMER OF CONST. COMPN. RELATIVE REACTIVITIES OF C SUB2 F SUB4 AND HEXAFLUOROPROPYLENE ARE 3.5 AND 0, RESP., IN THE GAS PHASE.

UNCLASSIFIED



USSR

UDC: 539.124.18

VYATSKIN, A. Ya., KABANOV, A. N., TRUNEV, V. V.

"Transmission, Reflection and Absorption of High-Power Electron Beams in Thin Films of Some Metals and Alloys"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1893-1899

Abstract: A simultaneous study is made of the integral coefficients of transmission, absorption and reflection of electron beams with current densities of 1-3 A/cm<sup>2</sup> and initial electron energy of 10-35 keV in free thin films of aluminum, copper and nichrome alloy. An analysis of curves for the coefficients of transmission  $\eta$ , reflection  $r$  and absorption  $\gamma$  as functions of film thickness  $x$  showed satisfactory agreement with the previously found empirical expressions

$$(1) \quad \eta(x) = \exp[-\alpha x^p],$$

$$(2) \quad r(x) = r_0 \{1 - \exp[-\mu x^p]\},$$

where  $\alpha$  and  $\mu$  are factors which depend on the initial energy, while  $p$  is independent of energy and depends only on the properties of the material;  $r_0$  is the coefficient of reflection for a massive specimen. Values of the

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VYATSKIN, A. Ya. et al., Radiotekhnika i Elektronika, Vol 17, No 9, Sep 72, pp 1893-1899

experimental coefficients  $p$ ,  $\alpha$ ,  $\mu$ , and  $r_0$  are determined. An expression is found for the mean transverse flight paths of "stopped" and reflected electrons as a function of the initial energy. It is shown that within the investigated range of beam energies and current densities the behavior of electron transmission, absorption and reflection as characterized by formulas (1) and (2) is independent of the current density and holds up to destruction of the materials.

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USSR

UDC 621.9.048

LABANOV, A.N., PODGORNOVA, L.I., RYBIN, V.M.

"Measurement Of Instability Of Current Of Pulsed Electron Beam In Devices For Microprocessing Of Materials"

Tr. Mosk.in-ta elektron. mashinostr. (Works Of The Moscow Institute Of Electrical Machine Construction), 1970, No 9, pp 107-115 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2A441)

Translation: The results of processing of materials in devices for pulsed microprocessing are determined to a considerable degree by the instability of the pulsed electron beam current. For direct measurement of the current instability, a pulsed voltage, separable at a resistor, and connected between the current collector and the "ground," was converted into direct voltage with the aid of an envelope detector and low-frequency filter. M.V.

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UDC 621.9.048

YABANOV, A.N., KAFANOV, A.A., YUDAYEV, V.N.

"Guns For Electron-Beam Microprocessing Of Material"

Tr.Mosk.in-ta elektron.mashinostr. (Works Of The Moscow Institute Of Electrical Machine Construction), 1970, No 9, pp 52-55 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 24442)

Translation: The optical, energetical, and operational characteristics are discussed of triode electron guns which are used in electron beam units for microprocessing of materials. Particular attention is paid to the properties of electron guns with a tungsten directly-heated cathode operating in a regime of heavy currents on the order of 10-20 ma at accelerating voltages of 50-100 kv. M.V.

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USSR

UDC 621.382.002

BOBISHINA, L.V., ZVORZIN, D.B., LABANOV, A.N., YUDAYEV, V.N.

"Electron Lithography"

Tr. Mosk. in-ta elektron.mashinostr. (Works Of The Moscow Institute Of Electrical Machine Building), 1970, No 9, pp 5-31 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 23741)

Translation: The possibility and methods are discussed of using an electron beam in the production of semiconductor devices. Results are compared which are obtained with the aid of positive and negative, native and foreign photoresists based on oxide protective films, and also without use of photoresists (in this case organosilicon compounds are used as protective films). Two methods are compared of obtaining an electron image -- the scanning beam and the microshadow method. Use of electron diffraction examination makes it possible to obtain on  $\text{SiO}_2$  a line with a width down to 0.6 micrometer. 7 ill. 1 tab. 39 ref. K.K.

1/1

1/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--APPARATUS FOR MEASURING THE LIFETIMES OF MINORITY CARRIERS IN  
SEMICONDUCTORS -U-

AUTHOR--(05)-VLASOV, A.N., KABANOV, A.N., KURBATOV, L.N., PETROVA, I.YU.,  
SOROKONOVITSKIY, N.V.

COUNTRY OF INFO--USSR

SOURCE--PRIB. TEKH. EKSP. 1970, 1, 222-3

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CADMIUM SULFIDE, ZINC TELLURIDE, MINORITY CARRIER,  
SEMICONDUCTOR MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1008

STEP NO--UR/0120/70/001/000/0222/0223

CIRC ACCESSION NO--AP0115029

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0115029

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APP. IS DESCRIBED FOR MEASURING  
THE LIFETIMES OF MINORITY CARRIERS ACCORDING TO THE DROP IN  
CATHODOLUMINESCENCE OF SEMICONDUCTORS IN THE VISIBLE AND NEAR IR  
REGIONS. VALUES ARE GIVEN FOR CDS AND ZNTE.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--REFLECTION OF ELECTRONS BY THIN FILMS OF A SOLID -U-

AUTHOR-(04)-VYATSKIN, A.YA., KABANOV, A.N., MAKAROV, K.A., TRUNEV, V.V.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, 1970, PP 565-570

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--ELECTRON REFLECTION, THIN PLATE, FREE PATH, MATHEMATIC  
ANALYSIS, THIN FILM SEMICONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1999/1361

STEP NO--UR/0109/70/000/003/0565/0570

CIRC ACCESSION NO--AP0123319

UNCLASSIFIED



2/2 028

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0123319

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SEMIEMPIRICAL METHOD WAS USED TO DERIVE EXPRESSIONS FOR THE INTEGRAL COEFFICIENT OF REFLECTION, PATH DISPERSAL OF REFLECTED ELECTRONS, AND MEAN FREE PATH AS A FUNCTION OF INITIAL ENERGY. THIS WAS DONE ON THE BASIS OF EXPERIMENTAL RESULTS OBTAINED EARLIER (1-2) FOR THE COEFFICIENTS OF REFLECTION AND PENETRATION OF MEAN ENERGY ELECTRONS (KEV UNITS AND KEV TENS) IN THIN FILMS OF A SOLID (METALS AND SEMICONDUCTORS). THE OBTAINED RESULTS ARE IN GOOD AGREEMENT WITH TEST DATA.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--EFFECT OF ELECTROLYTE PH ON THE ANODIC DISSOLUTION OF IRON DURING  
ELECTROCHEMICAL TREATMENT -U-

AUTHOR-(03)-DAVYDOV, A.D., KABANOV, B.N., KASHCHEEV, V.D.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. OBRAB. MATER. 1970, (1), 48-51

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ELECTROCHEMISTRY, ELECTROCHEMICAL MACHINING, METAL  
PASSIVATION, IRON ALLOY, ELECTROLYTE, ANODIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0134

STEP NO--UR/0472/70/000/001/0048/0051

CIRC ACCESSION NO--AP0054930

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054930

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF PH ON THE ANODIC DISSOLN. OF ARMCO FE IN BUFFERED 4.5 NACL SOLN. WAS STUDIED BY POTENTIOSTATIC POLARIZATION CURVES AT A ROTATING DISK ELECTRODE (5000 RPM). THE POTENTIAL WAS VAIED AT A RATE EQUALS 2 V-MIN. AT PH VALUES GREATER THAN 8, PASSIVATION OCCURRED AT A VOLTAGE SIMILAR TO 0.8 RELATIVE TO THE STD. H ELECTROD AND PRACTICALLY STOPPED AN FURTHER ELECTROCHEM. MACHINING. PASSIVATION WAS DUE TO FILM FORMATION.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--PASSIVATION LAYERS FORMED ON ZINC DURING ANODIC POLARIZATION IN  
STRONG ALKALINE ZINCATE ELECTROLYTES -U-  
AUTHOR-(04)-POPOVA, T.I., SIMONOVA, N.A., KULYAVIX, V.YA., KABANDV, B.N.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 104-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ELECTROLYTE, ANODE POLARIZATION, METAL PASSIVATION, ZINC,  
METAL ELECTRODE, OXIDE FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1988/0695

STEP NO--UR/0364/70/006/001/0104/0108

CIRC ACCESSION NO--AP0105671

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105671

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE PASSIVATION POTENTIAL OF A ZN ELECTRODE, THE COMPN. OF THE ELECTROLYTE, AND CONDITIONS OF DIFFUSION ON THE THICKNESS AND COMPN. OF THE OXIDE FILMS DEPOSITED ON THE ELECTRODE. THE ACTIVATION OF ZN ELECTRODES PASSIVATED AT 0.0 V BEGAN AT MINUS0.3 AND WAS COMPLETE AT MINUS1.3 V. THE REDN. POTENTIAL WAS IN A SEMI LOG RELATION TO THE EXCESS O REMAINING IN THE FILM. AN INCREASE IN THE CATHODIC C.D. SHIFTED THE REDN. POTENTIAL OF THE EXCESS O TOWARD THE NEG. SIDE. UP TO MINUS1.3 V. ALL THE O ABOVE STOICHIOMETRIC IN THE PASSIVATION FILM IS REDUCED ACCORDING TO:  $(1-M) ZNO SUB1 PLUS M PLUS H SUB2 O PLUS 2E$  PRIMENEGATIVE YIELDS  $(1-M) ZNO PLUS 2OH$  PRIMENEGATIVE, WHERE 1 IS LARGER THAN M IS LARGER THAN 0. WHEN THE PASSIVATION IN SOLNS. CONTG. NO ZINCATE WAS SLIGHT, THE EXCESS OVER STOICHIOMETRIC O IN THE FILM WAS 5-7, AND WHEN THE PASSIVATION WAS HEAVY, IT ROSE TO 10 AT. PERCENT. IN THE CASE OF PASSIVATION IN ALK. SOLNS. SUPERSATD. WITH ZINCATE, THE VALUES WERE 1-2 AND 3 AT. PERCENT, RESP. EXPTS. WITH AGITATING THE SOLN. SHOWED THAT THE QUANTITY OF ELECTRICITY REQUIRED TO DISSOLVE THE PASSVATING FILM AND ACTIVATE THE ELECTRODE DEPENDS ON THE RATE AT WHICH HO SUB2 PRIMENEGATIVE IS REMOVED FROM THE ELECTRODE.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--POTENTIOSTATIC PASSIVATION AND GALVANOSTATIC ACTIVATION OF ZINC IN  
SUPERSATURATED ZINCATE SOLUTIONS OF POTASSIUM HYDROXIDE -U-  
AUTHOR-(03)-IVANOV, E.A., POPOVA, T.I., KABANOV, B.N.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKIMIYA 1970, 6(1) 100-3

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POTASSIUM HYDROXIDE, METAL PASSIVATION, OXIDE FILM, ZINC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0694

STEP NO--UR/0364/70/006/001/0100/0103

CIRC ACCESSION NO--AP0105670

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PASSIVATION OF ZN ELECTRODES OCCURS AT A POTENTIAL OF APPROX. 0.3 V MORE POS. THAN THE POTENTIAL AT WHICH ZNO FORMS. IN SUPERSATD. KOH SOLN. PASSIVATION OF ZN IS NOT CAUSED BY THE FORMATION OF ZNO LAYER BUT RATHER BY THE ABSORPTION OF O IN EXCESS OF STOICHIOMETRIC QUANTITY ON THE SURFACE ZNO LAYER FORMING A FILM OF ZNO SUB1 PLUS M, WHERE M IS LESS THAN 1. THE PEROXIDE TYPE FILM IS FORMED BY THE ELECTRODE DISCHARGE OF OH PRIMENEGATIVE. THE NECESSARY CHARGE FOR A ZN ELECTRODE TO BE PASSIVATED NEAR THE TRANSITION POTENTIAL, NEGATIVE 1.0 TO NEGATIVE 0.9 V., TO BE ACTIVATED IS 0.7-0.9 MILLICOULOMB-CM PRIME2. AS THE POTENTIAL OF THE PRECEDING PASSIVATION INCREASES, THE QUANTITY OF ELECTRICITY REQUIRED TO REDUCE THE EXCESS O IN THE OXIDE FILM INCREASES LINEARLY. WHEN THE PASSIVATION TOOK PLACE AT 1.1 V, THE AMT. OF ELECTRICITY REQUIRED ROSE TO 130-180 MILLICOULOMBS-CM PRIME2. WHEN PASSIVATION OCCURRED AT 1.4 V THE ELECTRICITY REQUIRED TO ACTIVATE THE ELECTRODE DROPPED SHARPLY, WHICH IS ATTRIBUTED TO THE EVOLUTION OF O ON THE ELECTRODE.

UNCLASSIFIED

1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ELECTROCHEMICAL CATHODIC EROSION OF LEAD -U-  
AUTHOR-(03)-CHERNOMORSKIY, A.I., KISELEVA, I.G., KABANOV, B.N.  
COUNTRY OF INFO--USSR  
SOURCE--ELEKTROKHIMIYA 1970, 6(3), 429-32  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--POTENTIOMETRIC ANALYSIS, CAVITATION, CHEMICAL DECOMPOSITION,  
LEAD, METAL ELECTRODE, ELECTROCHEMISTRY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1998/1141 STEP NO--UR/0364/70/006/003/0429/0432  
CIRC ACCESSION NO--AP0121700  
UNCLASSIFIED



2/2 039

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTRODUCTION OF ALKALI METAL AT HIGH CATHODIC POTENTIALS INTO PB ELECTRODES IN 10N NaOH WAS INVESTIGATED BY A CHRONOPOTENTIOMETRIC METHOD. THE AMT. OF ALKALI METAL INTRODUCED INTO THE PB INCREASED MARKEDLY ON STARTING FROM A POTENTIAL OF MINUS 2.1 V (VS. STANDARD H ELECTRODE), WHILE AT A POTENTIAL OF MINUS 2.3 V, INTENSIVE EROSION OF PB TOOK PLACE (VISUALLY OBSERVED). THE AUTOMIZATION PROCEEDED MORE RAPIDLY AND INTENSELY FOR 1-5 N NaOH SOLNS. AT A POTENTIAL OF MINUS 2.4 V THAN AT MINUS 2.3 V. THE REASON FOR THE ATOMIZATION OF PB IS THE CHEM. DECOMP. OF THE INTERMETALLIC COMPD. HAVING A LARGE CONTENT OF ALKALI METAL. FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

Amplifiers

USSR

UDC 621.375.421

KABANOV, D. A., YUKHTANOV, G. F.

"Correction of a High-Frequency Traveling-Wave Tunnel-Diode Amplifier"

Kiev, Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 663-669

Abstract: A resonance tunnel-diode traveling wave amplifier is analyzed theoretically and experimentally. The possibility of expanding its pass band and carrying over the results of correcting an aperiodic traveling wave amplifier [G. F. Yukhtanov, et al., Radioizmeritel'naya Tekhnika, No 1, 100, 1969; D. A. Kabanov, et al., Radioizmeritel'naya Tekhnika, No 2, 8, 1970] to the high-frequency range is demonstrated. An expression is obtained for the optimal correction parameter of the amplifier, and experimental results are presented for comparison with the theoretical analysis.

The normalized amplitude-frequency characteristics of the amplifier are plotted, and some results of calculating the basic parameters of the amplifier as a function of a number of values of  $\beta$ ,  $\alpha$  and  $p$  when  $m \approx 10^{-2}$ ,  $s = 0$  and  $r = 0.7$  are tabulated. These data lead to the conclusions that 1) when  $\delta = 0$  and  $1/2$

KABANOV, D. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Radioelektronika, Vol XIV, No 6, 1971, pp 663-669

the detuning  $\Delta x_1 = |x - x_{\text{resonance}}| > 0$  the characteristics  $K(x)$  decrease monotonically; 2) increasing the resonance frequency  $x_{\text{resonance}}$  causes a decrease in  $K(x_{\text{resonance}})$  and  $x_0$  with simultaneous expansion of the pass band  $\Delta x$ ; 3) detuning of the circuits ( $x_c \neq x_{\text{resonance}}$ ) with  $\beta = \text{const}$  leads to an increase in the scattering  $\Delta_0$  in the characteristic  $K(x)$ ; 4) the coefficient  $\delta$  depends weakly on  $r$  and  $\beta$  since the capacitance  $C(x) \approx \text{const}$ ; and 5) the coefficient  $x_0$  and the scattering  $\Delta_0$  decrease on introduction of the diode capacitance  $C$ .

USSR

UDC: 621.317.742

KABANOV, D. A., POPOV, A. A.

"Evaluating the Noise Properties of Measurement Lines With Discrete Non-homogeneities"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 36-37 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A383)

Translation: The authors analyze internal fluctuation noises of a transmission line matched at the boundaries with  $N$  equidistant diodes with identical parameters. The method of graphs is used to determine the coefficients of transmission of the noises from their sources to each nonhomogeneity, and the energy spectrum is found on this nonhomogeneity. Expressions are found for the dispersion of the noise voltage for various components (shot noise, etc.). Calculations show that the overall level of the noise voltage with a wave impedance of  $50 \Omega$  and  $N = 20$  for series produced pulse diodes is of the order of  $50-200 \mu V$ . Thermal noises make up the biggest part. Bibliography of four titles. E. L.

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1/2 033

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--LUMINESCENCE OF AIR STUDIED UNDER THE ACTION OF FAST ELECTRONS -U-

AUTHOR--(05)-VAGIN, YU.P., KABANOV, G.I., MEDVEDEV, YU.A., NESHKOV, D.Z.,  
STEPANOV, B.M.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(2), 177-8

K

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LUMINESCENCE, AIR, ELECTRON, DOSIMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/2255

STEP NO--UR/0089/70/028/002/0177/0178

CIRC ACCESSION NO--AP0125833

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--27NOV70  
CIRC ACCESSION NO--AP0125833  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LUMINESCENCE INTENSITY I  
SUBLUM OF AIR BOMBARDED WITH 2-4 MEV E PULSES (FROM A LINEAR  
ACCELERATOR) IS INDEPENDENT OF THE E ENERGY AND INCREASES LINEARLY 1-3.5  
ARBITRARY UNITS WHEN THE E CURRENT IN A PULSE IS INCREASED 30-110 MA,  
I.E., THE INTENSITY IS PROPORTIONAL TO THE ABSORBED DOSE RATE AND THE  
LUMINESCENCE OF AIR CAN THUS BE USED AS THE BASIS OF A NEW DOSIMETRIC  
METHOD.

UNCLASSIFIED

USSR

UDC: 8.74

ZHOGOLEV, Ye. A., ~~KABANOV, M. I.~~, TRIFONOV, N. P.

"Types of Quantities of the SIMPR System and Their Representation on the BESM-6"

Sb. rabot Vychisl. tsentra Mosk. un-ta (Collected Works of the Computing Center at Moscow University), 1971, vyp. 17, pp 90-116 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V530)

Translation: The initial set of forms of quantities processed in the SIMPR modular programming system is defined. The representation of these types of quantities on the BESM-6 computer is given. It is noted that the inclusion of any new algorithmic language in the SIMPR system requires definition of new forms of SIMPR quantities. The designations introduced for types of SIMPR quantities are recommended as standard for use in any scientific and procedural materials on the SIMPR system. V. Mikheyev.

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USSR

UDC: 8.72

ZHOGOLEV, Ye. A., ~~KABANOV, M. I.~~

"Basic Features of the UNIOS-68 Operational System"

Sb rabot. Vychisl tsentra Mosk. un-ta (Collected Works of the Computing Center at Moscow University), 1971, vyp. 17, pp 39-64 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V529)

Translation: The paper describes the *UNiversity Operational System* (UNIOS-68) which is directly related to the SIMPR modular programming system. The UNIOS-68 consists of a set of programs which control the process of using a computer for analyzing data and for preventive monitoring of its operability. The system is a component part of the corresponding data processing system which also includes: the computer itself including all data input/output facilities; facilities for storing and reproducing information, including accumulators on magnetic tapes, punchcards, etc.; the system of rules for using the devices of the machine, which determines start-up operation and stop of the data processing system; the persons who service the machine on the basis of these rules. The UNIOS-68 is designed for operation both in the mode of packet processing of data, and in the time-sharing mode. The mode of packet processing of data is understood to mean the mode of oper-

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USSR

ZHOGOLEV, Ye. A., KABANOV, M. I., Sb. rabot Vychisl. tsentra Mosk. un-ta, 1971, vyp. 17, pp 39-64

ation where the assignments of users, pregroupped into packets, are introduced into the data processing system by packets by an operator, and are carried out without the direct intervention of the users during the process of completion. The time-sharing mode is understood to mean a mode of operation of the system where several assignments of users are in process of execution. Each of these assignments is introduced into the data processing system from a user terminal, and is carried out under conditions of periodic allocation of some time of operation of the central processor to each of the assignments being executed, and with the possibility of direct intervention of the user in the process of execution of his own assignment. UNIOS-68 has a library which consists of data blocks (a library of modules), their nomenclatures, library resources and catalogs containing brief characteristics of the library modules and their arrangement in the library resources. V. Mikeyev.

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KABANOV, M. M.

UDC: 616.895.9-08

So: JPRS 53378  
16 JUN 71

CHIEF PRINCIPLES IN REHABILITATION OF SCHIZOPHRENICS

(Article by M.M. Kabanov, Psychiatrist, Institute named V.M. Bekhterev, Leningrad, USSR, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 5, May 1971, pp 97-99)

We view rehabilitation of mental patients, and in particular of schizophratics, as their resocialization, restoring individual and social value, their personal and social status.

Appeal to the patient's personality is the basis of all rehabilitation measures. Nevertheless, and this must be particularly stressed, various sociotherapeutic measures should be closely linked with biological methods of treatment. Therefore, rehabilitation is not only a social but also a clinical problem which requires not only appropriate organization of scientific investigations but also clearcut organization of the entire therapeutic process for it to be successful.

To date, the essence of rehabilitation, not to mention its distinctions, is understood differently by specialists of different nations. With reference to psychiatric rehabilitation, in some countries it is reduced mainly to therapy and in others to the problem of employment. We believe that these differences are due to insufficient consideration of the phasic nature of rehabilitation, in the sense that at each phase there may be prevalence of a certain type of help to the patient, since rehabilitation is a dynamic system of social, psychological and other measures.

According to the view of a number of authors, in particular of D.Ye. Bekhterev, rehabilitation should be divided into three stages; each of these stages was developed in greater detail at the Neuropsychiatric Institute named V.M. Bekhterev.

The first stage, which we call the stage of rehabilitation therapy and as its goal the prevention of the "patient slipping into isolation" (in the expression of Kaverdov), prevention of formation of a mental defect, of phenomena of so-called hospitalism (institutionalism) (either removal or reduction of these phenomena). The chief distinction of this stage is that it involves the complex use of biological methods of treatment combined with

Acc. Nr: ~~AP0052090~~

*KABANOV M.M.*  
Ref. Code: *UR0242*

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhatrii imeni  
S. S. Korsakova, 1970, Vol 70, Nr *3*,  
pp *399-408*

FACTOR ANALYSIS IN STUDIES WITH THE USE OF RATING  
PSYCHOPATHOLOGICAL SCALES

B. V. Iovlev, M. M. Kabanov, O. M. Kalinin, B. D. Karvasarskiy  
K. V. Korabelnikov

The presentation deals with the possibilities of using rating psychopathological scales in the evaluation of problems of rehabilitation of mental patients. The authors report and analyze the data of factor analysis in schizophrenia, depressive states, obtained with the aid of computers. The results demonstrate that it is possible to use factor analysis for the study of interconnections of psychopathological symptoms as well as of correlations between psychopathological and biological indices.

*111*  
REF/FRAME  
19820628  
*vdh 2*

Optics & Spectroscopy

USSR

DONCHENKO, V. A., ZUYEV, V. YE., KRASYUK, I. K., PAL'YANOV, P. A., PASHININ, P. P., PROKHOROV, A. M., KABANOV, M. V.

"Energy Attenuation of Supershort Pulses of Optical Emission by Dispersive Media"

Moscow, Pis'ma v ZhETF, Vol 18, No 4, 1973, pp 230-232

Abstract: Preliminary results are presented from direct measurements of one of the basic characteristics of a dispersive medium -- the attenuation coefficient -- on its interaction with a supershort pulse of optical emission. A decrease in attenuation of the supershort pulse by comparison with the case of emission which is continuous in time was detected experimentally. The results of measurements of the optical thickness of suspensions of polystyrene latexes and lycopodium spores are tabulated for continuous and pulsed emission. The observed "transparency" of the medium which is three times as great in the case of a laser pulse by comparison with continuous radiation is not connected with such effects as the thermal effect on the properties of the medium, the spectroscopic effect of saturation and self-focussing.

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USSR

UDC 621.373.626:550.3

GENIN, V. N. and KABANOV, M. V.

"Experimental Investigation of the Dependence of the Atmosphere's Optical Transfer Function on the Wavelength"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 187-190 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D366)

Translation: Results are given of atmospheric optical transfer functions for two wave lengths ( $\lambda = 0.5$  and 1 microns). It is shown that in the region of high transparency frequencies in the infrared range, the atmospheric optical transfer function (in the transparent windows) is higher than in the visible range. Bibliography of five. A. L.

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USSR

UDC 621.373.826:621.396

KABANOV, M. V., PIHALAGOV, Yu. A., and ONTIKOVA, N. M.

"Experimental Investigation into the Intensity Fluctuations of Narrow Light Beams in Precipitation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tезisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 165-169 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D393)

Translation: A report is given of the results of measuring the fluctuations of light beams in snowfalls for the purpose of investigating the dependence of the light fluctuations on the parameters of the receiver system as well as the optical width and microstructure of the precipitation. It is established that the nature of the light fluctuations is determined by the statistical processes in aerosol dispersion. The signal fluctuations are interpreted as the screening effect of the light beam by the dispersion system. Three illustrations, bibliography of three. A. L. 1/1

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USSR

UDC 621.373.826:53

DONCHENKO, V. A., KABANOV, N. V. and PAL'YANOV, P. A.

"Scattering a Short Light Pulse in a Dispersive Medium"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tesisy dokl.  
(Tenth All-Union Conference on the Propagation of Radio Waves;  
Report Theses--collection of works) "Nauka," 1972, pp 351-355 (from  
RZh--Radiotekhnika, No 10, 1972, Abstract No 10D389)

Translation: An experimental investigation is conducted on the effect of the time of interaction between the radiation and the scattering particles on the form of the optical signal passing through a hazy medium. Three forms of modeled media having well-known parameters were used: suspensions of club moss (*Lycopodium*) in water-alcohol solution, a solution of milk in water, and a suspension of polystyrene in water. The maximum optical thickness of the scattering media did not exceed 4.7. No distortions of the light pulse were detected in its passage through the dispersive media. This permits the conclusion that the interaction time of the radiation and the scattering particles is no greater than  $3 \cdot 10^{-9}$  seconds. A. K.

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KABANOV, M. V.

Fochenkov, V. N.,  
Shadrinov, O. A.,  
Vasnetsov, R. A.,  
Lobachev, L. N.,  
Smirnov, N. I.,  
Armen'yan, I. I.,  
Armen'yan, T. I.,  
Semenov, A. A.,  
Gusev, V. G.,  
Vorobeychikov  
Milyutin, Ye. P.,  
Lobkova, L. N.,  
Lisakov, T. P.,  
Chistyakov, A. B.,  
Lobkova, L. N.,  
Vlasov, G. I.,  
Levin, I. H.,  
Gosh, V. M.,  
Kabanov, M. V.,  
Vaytsel, V. I.,  
Khmel'nikov, S. S.,  
Senkevich, B. V.,  
Lysakov, Ye. I.,  
Ostrov, Yu. N.,  
Vasnetsov, R. A.,  
Petrov, A. S.,  
Sagatov, E. A.,  
Kazakov, A. U.,  
Sagatov, E. A.,  
Nazarov, A. U.

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# TECHNICAL TRANSLATION

11-07 / ESTC 417 23 2015-17

87 417 23

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION  
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,  
SEPTEMBER 1968

RUSSIAN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLOUCHENIEM

AUTHOR: I. A. DERJUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY  
IMENI T.G. SCHEGHERKO

Translated for ESTC by ACST

## NOTICE

The contents of this publication have been translated as presented in the original text. No attempt has been made to verify the accuracy of any statement contained herein. This translation is published with a minimum of copy editing and graphics preparation in order to expedite the dissemination of information.

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11-07 P  
87 417 23

USSR

UDC 551.521.3.593.52

LUJEV, V. YE., KASANOV, M. V., and PKHALAGOV, YU. A., Institute of Atmospheric Optics, Siberian Department of the Academy of Sciences USSR

"Equipment and Procedure for Measuring Spectral Transmittance of Atmosphere in 0.48-12 Micron Range With Average Resolution"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 5, 1972, pp 42-46

Abstract: The article describes measuring equipment and procedure for a comprehensive study of atmospheric transmittance in the visible and infrared regions of the spectrum on extended ground routes, for the purpose of separating radiation attenuation into individual components. The apparatus for measuring the spectral atmospheric transmittance includes a radiation source and a receiving and recording device, situated at opposite ends of the measuring route, whose length is 3500 m. The receiving and recording system consists of a telescope and a spectrometric and a photoelectric channel mounted on a common rotating device. A special cam is used to open the slits, making it possible to automate the process of recording the spectrum by means of the equipment described and obtain a direct atmospheric transmiss-

1/2

USSR

ZUYEV, V. YE., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 5, 1972, pp 42-46

sion curve in relative units. Processing of the experimental data is simplified. The equipment described was used in the summer and fall of 1970 for systematic measurements of spectral atmospheric transmittance in haze of varying density. A large number of atmospheric transmission spectra were obtained, with the optimum time for recording the complete spectrum from 0.48 to 12 microns equal to 25 min. or several times less than with the usual procedure. The measurement results will be described in a separate article.

2/2

- 90 -

1/3 021 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--SPECTRAL TRANSPARENCY OF PRECIPITATION FOR INFRARED WAVES -U-

AUTHOR--(02)--KABANOV, N.V., PRHALAGOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA,  
VOL. VI, NO. 2, 1970, PP. 213-217  
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, PHYSICS

TOPIC TAGS--RAIN, SNOW, SPECTROMETER, SPECTRUM, ATMOSPHERIC TRANSPARENCY,  
RADIATION SOURCE, PHOTOMETER/(U)IKS21 SPECTROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAHE--1991/1300

STEP NO--UR/0362/70/006/002/0213/0217

CIRC ACCESSION NO--AP011 1892

UNCLASSIFIED

. 2/3 021

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110892

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF MEASUREMENTS OF SPECTRAL TRANSPARENCY OF RAIN AND SNOW IN THE RANGE OF WAVELENGTHS 1-10 MU ARE PRESENTED AND THE AUTHORS COMPARE THE COLLECTED EXPERIMENTAL DATA WITH COMPUTED VALUES USING SINGLE SCATTERING FORMULAS. THE MEASUREMENTS WERE MADE ALONG A PATH 3.5 KM IN LENGTH. THE RADIATION SOURCE WAS A LAMP PLACED IN THE FOCUS OF A PARABOLIC MIRROR 900 MM IN DIAMETER AND WITH A FOCAL LENGTH OF 640 MM. THE RECEIVING SYSTEM CONSISTED OF A HORIZONTAL TELESCOPE WITH AN ENTRANCE DIAMETER OF 720 MM AND AN EQUIVALENT FOCAL LENGTH OF 10 M. THE SOURCE RADIATION WAS FOCUSED ON THE ENTRANCE SLIT OF AN IKS-21 SPECTROMETER. IN THE ENTIRE INVESTIGATED-RANGE THE DISPERSING SYSTEM WAS A NaCl PRISM ENSURING A SPECTRAL RESOLUTION OF 0.04-0 MU. THE MEASUREMENTS WERE ACCOMPANIED BY THE SIMULTANEOUS REGISTRY OF THE DYNAMICS OF TRANSPARENCY OF PRECIPITATION BY A PHOTOMETER. THE ONLY MEASUREMENTS PROCESSED WERE THOSE FOR STEADY AND PERSISTENT PRECIPITATION. THE MEASURED COEFFICIENT OF ATTENUATION BY LARGE PARTICLES  $\tau(\lambda)$  IS RELATED TO THE TRUE (THEORETICAL)  $\tau_{\text{SUBO}}$  VALUE AS FOLLOWS:  $\tau(\lambda) = \tau_{\text{SUBO}} K(z; z_{\text{SUBO}})$ ;  $z_{\text{SUBO}}$  IS A COMPLEX FUNCTION OF  $z$  AND  $z_{\text{SUBO}}$ , WHERE  $z_{\text{SUBO}} = \rho \sin \psi$  AND  $z = \rho \cos \psi$ ;  $\psi$  IS THE ANGLE OF VIEW OF THE RECEIVING SYSTEM;  $\rho$  IS THE ENTRANCE DIAMETER OF THE RECEIVING SYSTEM;  $L$  IS THE DISTANCE BETWEEN THE SOURCE AND THE RADIATION RECEIVER. THE FACTOR  $K(z; z_{\text{SUBO}})$  VARIES FROM 1 TO 2, DECREASING WITH AN INCREASE IN  $z$ .

UNCLASSIFIED

3/3' 021

UNCLASSIFIED

PROCESSING DATE--02OCT70

SIPC ACCESSION NO--AP0110392

ABSTRACT/EXTRACT--THE ABOVE EXPRESSION SHOWS THAT FOR FIXED FOR FIXED DISTANCES AND DIAMETERS  $\lambda$  OF THE RECEIVING SYSTEM THE MEASURED SCATTERING COEFFICIENT IN PRECIPITATION MUST CHANGE WITH WAVELENGTH. THE RESULTS OF ACTUAL MEASUREMENTS OF THE SPECTRAL DEPENDENCE OF THE IR ATTENUATION COEFFICIENTS FOR WAVELENGTHS FROM 1 TO 10 MU IN PRECIPITATION AGREE QUALITATIVELY WITH COMPUTATIONS BY THE ABOVE FORMULA. FACILITY: SIBERIAN PHYSICAL TECHNICAL INSTITUTE.

UNCLASSIFIED

USSR

UDC: 621.791.793

KROSHKIN, V. A., TSAREVSKIY, V. V., KABANOV, N. M., MAKSHANOV, V. S., FEDOSEYEV, B. A., GEYNISH, Z. V., GORKUNENKO, G. N., and GUBANOV, A. S., All-Union Scientific Research, Planning Technological Institute of Chemical Petroleum Equipment

"Electro-Slag Welding With Concomitant Normalization by the Induction Method"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 48-51

Abstract: The authors study methods for increasing the resistance to brittle fracture of joints made from low-alloy grades of steel and which were electro-slag welded. The results show that the coincidence of the heat cycles ensures the required impact strength for all joint zones up to 80 mm thick down to  $-70^{\circ}\text{C}$  during the pilot introduction of the new technology for the electro-slag welding of the O9G2S grade steel. The developed industrial frequency, induction unit makes it possible to coincide the heat cycles of electro-slag welding with the concomitant normalization of the longitudinal and annular seams on large and small equipment made from cold-resistant and heat-resistant, low-alloy grades of steel. Further study is required to select the optimal heat cycles for electro-slag welding and normalization of joints as a function of thickness and steel grade.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--THE SELECTION OF UPSET PARAMETERS IN FLASH WELDING OF ALUMINUM AND  
ITS ALLOYS -U-  
AUTHOR--(U3)-KABANOV, N.S., MOKEICHEV, V.G., RYSS, B.A.  
COUNTRY OF INFO--USSR *K*  
SOURCE--MOSCOW, SVAROCCHADYE PROIZVODSTVO, NO 3, 1970, PP 28-29  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ALUMINUM ALLOY, FLASH WELDING, BIBLIOGRAPHY, ALUMINUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/1306 STEP NO--UK/0135/70/000/003/0028/0029  
CIRC ACCESSION NO--AP0123265  
UNCLASSIFIED



2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MINIMUM PERMISSIBLE SPEEDS AND SPECIFIC PRESSURES OF THE UPSET IN FLASH WELDING OF 1-5 MM THICK AND 100-300 MM WIDE STRIPS FROM FORMING ALUMINUM ALLOYS ARE BEING DEFINED MORE ACCURATELY.

UNCLASSIFIED

USSR

UDC 681.2.034.2:541.132.3

BARTAZAROV, E. G., DEVDARIANI, I. V., KABANOV, P. S., and  
MARTIROSOV, V. D.

"Input Device of pH-Meter With Unipolar Field Transistor"

Moscow, Izmeritel'naya Tekhnika, No 2, Feb 73, pp 65-66

Abstract: A study was made by the Special Design Office of Analytical Instrument Making in Tbilizi of the possibility to substitute electron tubes by field transistors with p-n transition of KP102 (TN-1) type in the input stage of pH-metrical amplifier, built according to the principle of transformation of the input signal frequency. Good results were obtained with the use of a schema with feedback servosystem in the input stage of pH-meter. The principal schema and the equivalent schema of the input device are shown and calculation formulas for determining the main parameters of the device are given. The described input device used in the laboratory pH-meter, redoxmeter pH-673, works satisfactorily. The device may be used in works with different types of transducers of d-c voltage into a-c voltage. Two figures, three bibliographic references.

1/1

Polymers and Polymerization

USSR

UDC 678.744.325.01:539.389

SKOROBOGATOVA, A. Ye., ARZHAKOV, S. A., BAKYEV, N. F., and KABANOV, V. A.,  
Moscow State University Imeni M. V. Lomonosov

"Forced Elastic Relaxation of Glass-Like Polymers and the Mechanism of Forced  
Elasticity"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 1, Jul-Aug 73, pp 151-154

Abstract: The kinetics of the relaxation of polymethylmethacrylate samples, polymethylmethacrylate mixed with 20% dibutyl phthalate and other polymers subjected to preliminary monoaxial compression or stretching in the glass-like state was studied in an attempt to find the relationship between forced elasticity and supermolecular structure of the polymers. In general, the forced elastic deformation consists of two components: one of them is capable of relaxing at low temperature, the other -- at the temperature of glass formation. The input of these components depends on the temperature of deformation and on the degree of deformation at a fixed temperature. There were no differences found between these two samples tested. The experimental data, especially the relaxation ability after the deformation due to monoaxial compression, point out that the amorphous polymers have a quite perfectly ordered supermolecular structure.

1/1

USSR

KABANOV, V. A.

"Construction of Confidence Areas of Parameters of Statistical Models with Nonlinear Parametrization"

Sb. Nauch. tr. VNII Transp. Str-va. [Collected Scientific Works of All-Union Scientific Research Institute for Transport Construction], 1972, No 62, pp 119-124 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V165 by V. Pagurova).

Translation: The task of estimating nonlinear statistical models utilizes a posteriori interval methods for estimation of parameters. The a posteriori probability density of parameters, expressed through the likelihood function and the a priori probability density of parameters are used to construct the confidence areas. The Monte Carlo method is used to find the lower confidence limit, defining the area of permissible values of parameters. An example is presented of estimation of the parameters  $(m, \sigma, \sigma_\epsilon)$  of the nonlinear model

$$y = \frac{1}{\sigma \sqrt{2\pi}} \exp \left\{ -\frac{1}{2\sigma^2} (x - m)^2 \right\} + \epsilon$$

( $\epsilon$  is normal  $(0, \sigma_\epsilon^2)$ ), parameters  $(m, \sigma, \sigma_\epsilon)$  have a priori even distribution

USSR

KABANOV, V. A., Sb. Nauch. tr. VNII Transp. Str-va., 1972, No 62,  
pp 119-124.

tion) using the sample  $(y_1, x_1, y_2, x_2, \dots, y_n, x_n)$ .

2/2

- 17 -

1/2 026 UNCLASSIFIED PROCESSING DATE--2900170  
TITLE--ROLE OF THE COOPERATIVE INTERACTION OF GROWING CHAINS AND  
MACROMOLECULAR MATRIXES DURING POLYMERIZATION -U-  
AUTHOR--(05)-OSADA, YE., ANTIPINA, A.D., PAPISOV, I.M., KABANOV, V.A.,  
KARGIN, V.A.  
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 379-402 (PHYS CHEM)

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MACROMOLECULE, METHACRYLIC ACID, POLYMERIZATION, HYDROGEN  
BONDING, CHEMICAL REACTION RATE, MOLECULAR INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1997/1127

STEP NO--UR/0020/70/191/002/0379/0402

CIRC ACCESSION NO--AT0119981

UNCLASSIFIED

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MACROMOLECULE, POLYMER, VINYL COMPOUND, PYRIDINE, BROMINATED ORGANIC COMPOUND, ELECTROPHORESIS.

2/2 026

UNCLASSIFIED

PROCESSING DATE: 01-01-79

CIRC ACCESSION NO--A0119981

ABSTRACT/EXTRACT--(U) OP-O- ABSTRACT. K SUB2 S SUB2 C SUB2 INITIATED POLYMN. OF METHACRYLIC ACID (I) IN AQ. MEDIA AT 5000000 IN THE PRESENCE OF POLYETHYLENE GLYCOL (II) OF VARIOUS MOL. WTS. WAS STUDIED TO ESTABLISH THAT THE PROPOSED COOPERATIVE INTERACTION BETWEEN THE CARBONIC POLY(METHACRYLIC ACID) (I) CHAIN AND THE II MATRIX AROSE FROM A BONDING BETWEEN CO SUB2 N GROUPS AND II O ATOMS. THE POLYMN. RATE OF I FELL GREATER THAN 10 TIMES AS II MOL. WT. INCREASED FROM SIMILAR TO 100 TO SIMILAR TO 10,000. LOW MOL. WT. II DID NOT FORM STIRLING COMPLEXES WITH III AS SHOWN BY INDEPENDENCE OF THE REDUCED VISCOSITY OF III IN THE PRESENCE OF II ON II MOL. WT. LESS THAN 1000. THE INITIAL RATE WAS INDEPENDENT OF II CONCN. APPARENTLY, III MUST ATTAIN SUFFICIENT LENGTH FOR COOPERATIVE INTERACTION WITH II BEFORE POLYMN. CONTINUES ON THE MATRIX. AFTER ATTAINING A 3-4PERCENT YIELD BASED ON III OF III OF ADDING THE CALCD. AMT., THE POLYMN. RATE INCREASED TO THAT OBSD. IN THE ABSENCE OF II. AT HIGH PH, WHERE MONOMER AND III CHAINS WERE IONIZED, THE REACTION RATES IN THE PRESENCE AND ABSENCE OF II COINCIDED; BUT WITH LOWERING OF PH, THE RATE INCREASED INSIGNIFICANTLY IN THE PRESENCE OF II WHILE THE RATE IN THE ABSENCE OF II INCREASED. FACILITY: MOSK. ODS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--THE SELECTION OF UPSET PARAMETERS IN FLASH WELDING OF ALUMINUM AND  
ITS ALLOYS -U-  
AUTHOR--(U3)--KABANGV. N.S., MOKEICHEV, V.G., RYSS, B.A.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, SVAROVCHNOYE PRIZVODSTVO, NO 3, 1970, PP 28-29  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--ALUMINUM ALLOY, FLASH WELDING, BIBLIOGRAPHY, ALUMINUM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1999/1306 STEP NO--UR/0135/70/000/003/0028/0029  
CIRC ACCESSION NO--AP0123265  
UNCLASSIFIED



2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CINC ACCESSION NO--AP0123265

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MINIMUM PERMISSIBLE SPEEDS AND SPECIFIC PRESSURES OF THE UPSET IN FLASH WELDING OF 1-5 MM THICK AND 100-300 MM WIDE STRIPS FROM FORMING ALUMINUM ALLOYS ARE BEING DEFINED MORE ACCURATELY.

UNCLASSIFIED

UDC 681.2.084.2:541.132.3

USSR

BARTAZAROV, E. G., DEVDARIANI, I. V., KABANOV, P. S., and  
MARTIROSOV, V. D.

"Input Device of pH-Meter With Unipolar Field Transistor"

Moscow, Izmeritel'naya Tekhnika, No 2, Feb 73, pp 65-66

Abstract: A study was made by the Special Design Office of Analytical Instrument Making in Tbilizi of the possibility to substitute electron tubes by field transistors with p-n transition of KP102 (TN-1) type in the input stage of pH-metrical amplifier, built according to the principle of transformation of the input signal frequency. Good results were obtained with the use of a schema with feedback servosystem in the input stage of pH-meter. The principal schema and the equivalent schema of the input device are shown and calculation formulas for determining the main parameters of the device are given. The described input device used in the laboratory pH-meter, redoxmeter pH-673, works satisfactorily. The device may be used in works with different types of transducers of d-c voltage into a-c voltage. Two figures, three bibliographic references.

1/1

Polymers and Polymerization

UDC 678.744.325.01:539.389

USSR

SKOROBOGATOVA, A. Ye., ARZHAKOV, S. A., BAKHEYEV, N. F., and KABANOV, V. A.,  
Moscow State University Imeni M. V. Lomonosov

"Forced Elastic Relaxation of Glass-Like Polymers and the Mechanism of Forced Elasticity"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 1, Jul-Aug 73, pp 151-154

Abstract: The kinetics of the relaxation of polymethylmethacrylate samples, polymethylmethacrylate mixed with 20% dibutyl phthalate and other polymers subjected to preliminary monoaxial compression or stretching in the glass-like state was studied in an attempt to find the relationship between forced elasticity and supermolecular structure of the polymers. In general, the forced elastic deformation consists of two components: one of them is capable of relaxing at low temperature, the other -- at the temperature of glass formation. The input of these components depends on the temperature of deformation and on the degree of deformation at a fixed temperature. There were no differences found between these two samples tested. The experimental data, especially the relaxation ability after the deformation due to monoaxial compression, point out that the amorphous polymers have a quite perfectly ordered supermolecular structure.

1/1

USSR

KABANOV, V. A.

"Construction of Confidence Areas of Parameters of Statistical Models with Nonlinear Parametrization"

Sb. Nauch. tr. VNI Transp. Str-va. [Collected Scientific Works of All-Union Scientific Research Institute for Transport Construction], 1972, No 62, pp 119-124 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V165 by V. Pagurova).

Translation: The task of estimating nonlinear statistical models utilizes a posteriori interval methods for estimation of parameters. The a posteriori probability density of parameters, expressed through the likelihood function and the a priori probability density of parameters are used to construct the confidence areas. The Monte Carlo method is used to find the lower confidence limit, defining the area of permissible values of parameters. An example is presented of estimation of the parameters  $(m, \sigma, \sigma_e)$  of the nonlinear model

$$y = \frac{1}{\sigma \sqrt{2\pi}} \exp \left\{ -\frac{1}{2\sigma^2} (x - m)^2 \right\} + z$$

( $z$  is normal  $(0, \sigma_e^2)$ , parameters  $(m, \sigma, \sigma_e)$  have a priori even distribution)

1/2

KABANOV, V. A., Sb. Nauch. tr. VNII Transp. Str-va., 1972, No 62,  
pp 119-124.

tion) using the sample  $(y_1, x_1, y_2, x_2, \dots, y_n, x_n)$ .

2/2

- 17 -

1/2 026 UNCLASSIFIED PROCESSING DATE--2300170  
TITLE--ROLE OF THE COOPERATIVE INTERACTION OF GROWING CHAINS AND  
MACROMOLECULAR MATRIXES DURING POLYMERIZATION -U-  
AUTHOR--(051)-OSADA, YE., ANTIPINA, A.O., PAPISOV, I.M., KABANOV, V.A.,  
KARGIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 379-402 (PHYS CHEM)  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MACROMOLECULE, METHACRYLIC ACID, POLYMERIZATION, HYDROGEN  
BONDING, CHEMICAL REACTION RATE, MOLECULAR INTERACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/1127 STEP NO--UR/0020/70/191/002/0379/0402  
CIRC ACCESSION NO--AT0119981  
UNCLASSIFIED

PROCESSING DATE--2000

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AT0119981  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. K SUB2 S SUB2 O SUB8 INITIATED  
POLYMN. OF METHACRYLIC ACID (II) IN AQ. MEDIA AT 50DEGREES IN THE  
PRESENCE OF POLYETHYLENE GLYCOL (III) OF VARIOUS MOL. WTS. WAS STUDIED TO  
ESTABLISH THAT THE PROPOSED COOPERATIVE INTERACTION BETWEEN THE GROWING  
POLY(METHACRYLIC ACID) (III) CHAIN AND THE II MATRIX AROSE FROM H  
BONDING BETWEEN CO SUB2 H GROUPS AND II O ATOMS. THE POLYMN. RATE OF I  
FELL GREATER THAN 10 TIMES AS II MOL. WT. INCREASED FROM SIMILAR TO 100  
TO SIMILAR TO 10,000. LOW MOL. WT. II DID NOT FORM STRONG COMPLEXES  
WITH III AS SHOWN BY INDEPENDENCE OF THE REDUCED VISCOSITY OF III IN THE  
PRESENCE OF II ON II MOL. WT. LESS THAN 1000. THE INITIAL RATE WAS  
INDEPENDENT OF II CONC. APPARENTLY, III MUST ATTAIN SUFFICIENT LENGTH  
FOR COOPERATIVE INTERACTION WITH II BEFORE POLYMN. CONTINUES ON THE  
MATRIX. AFTER ATTAINING A 3-4PERCENT YIELD (BASED ON II) OF III OR  
ADDING THE CALCD. AMT., THE POLYMN. RATE INCREASED TO THAT OBSD. IN THE  
ABSENCE OF II. AT HIGH PH, WHERE MONOMER AND III CHAINS WERE IONIZED,  
THE REACTION RATES IN THE PRESENCE AND ABSENCE OF II COINCIDE; BUT WITH  
LOWERING OF PH, THE RATE INCREASED INSIGNIFICANTLY IN THE PRESENCE OF II  
WHILE THE RATE IN THE ABSENCE OF II INCREASED.  
GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.  
FACILITY: MOSK.

UNCLASSIFIED  
TITLE—STRUCTURAL CHANGES IN MACROMOLECULES OF  
POEY, 4-VINYLA, N-ISOAMYL PYRIDINIUM BROMIDES -U-  
AUTHOR—(05)—KIRSH, YU.E., BESSMERTNAYA, L.YA., TORCHILIN, V.P., PAPISOV,  
I.M., KABANOV, V.A.  
COUNTRY OF INFO—USSR  
SOURCE—DOKL. AKAU. NAUK SSSR 1970, 191(3), 603-6 (CHEM)  
DATE PUBLISHED—70  
SUBJECT AREAS—CHEMISTRY  
TOPIC TAGS—MACROMOLECULE, POLYMER, VINYL COMPOUND, PYRIDINE, BROMINATED  
ORGANIC COMPOUND, ELECTROPHORESIS  
CONTROL MARKING—NO RESTRICTIONS  
DOCUMENT CLASS—UNCLASSIFIED  
REF/FRAME—2000/0695  
STEP NO—UR/0020/70/191/003/0603/0606



2/2 021

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC. ACCESSION NO--AT0125367

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALKYLATION OF

POLY(4,VINYLPYRIDINE) WITH ISOAMYL BROMIDE GAVE

POLY(4,VINYL,N,ISOAMYLPRIDINIUM BROMIDE) (I) CONTG. VARIOUS AMTS.

(ALPHA) OF THE TERTIARY N ATOMS. THE CHANGES OF THE INTRINSIC VISCOSITY

OF I IN WATER (OBTAINED BY EXTRAPOLATION OF THE REDUCED VISCOSITY (ETA)

AT I CONCN. LESS THAN 0.01 G-DE. ONLY, SINCE ABOVE THAT CONCN. ETA

BEGINS TO DECREASE) INDICATE THAT I MOLLS. COIL UP AT THE LOW ALPHA

VALUES, BECOMING SMALLEST AT ALPHA 12.2PERCENT, AND THEN BEGIN TO UNCOIL

WITH ALPHA INCREASE LESS THAN OR EQUAL TO 40PERCENT. THESE RESULTS WERE

CONFIRMED ALSO BY THE CHANGES OF I ELECTROPHORESIS RATE WITH ALPHA.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

TITLE—REACTION OF MONOMERS WITH CARBONYL OR NITRILE GROUPS WITH METALS  
AND SOME REACTIONS OF THE RESULTING ANIONRADICALS —U—  
AUTHOR—(05)—PANASENKO, A.A., GOLUBEV, V.B., ZUBOV, V.P., KABANOV, V.A.,  
KARGIN, V.A.  
COUNTRY OF INFO—USSR

SOURCE—VYSOKOMOL. SOEDIN., SER. A 1970, 1294), 865-72

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—MONOMER, CARBONYL RADICAL, NITRILE, SODIUM, MAGNESIUM,  
ACRYLATE, ACETONE, BENZOIC ACID, FREE RADICAL, OLIGOMER

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAE—2000/0683

STEP NO—UR/0459/70/012/004/0865/0872

CIRC ACCESSION NO—AP0124355

UNCLASSIFIED

CONDENSED  
ME METHACRYLATE, ME ACRYLATE, ACETONE, N-  
PRCHO, TERT BUCHO, ACROLEIN, ACETONE, N-  
ETCN. THE CONDENSATE CONTAINED FREE RADICALS. THE REACTION  
MONOMERS WITH NA OR MG GAVE ANION RADICALS, SUCH AS (ME SUB2 CO), WHICH  
INITIATED THE OLIGOMERIZATION BY ANIONIC MECHANISM.  
MOSK. GOS. UNIV. IN. LOMONOSOVA, MOSCOW, USSR.  
FACILITY:

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201130006-6

UNCLASSIFIED

PROCESSING DATE--30OCT70

THE VAPORS OF NA OR MG WERE  
WITH THE VAPORS OF

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201130006-6"

Acc. Nr.

AP0055621

Abstracting Service:  
CHEMICAL ABST.

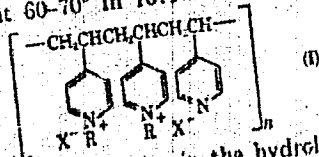
Ref. Code  
411 0460

1118797 Elementary constants of chain growth and termination during the radical polymerization of methyl methacrylate in the presence of aluminum bromide. Lachinov, M. B.; Zubov, V. P.; Kabanov, V. A. (USSR). Vysokomol. Soedin., Ser. B 1970, 12(1), 4-5 (Russ). In the polymn. of Me methacrylate (I) in the presence of  $AlBr_3$  with uv irradi., it was found that the initiation rate const. ( $k_i$ ) increases and the chain-transfer const. ( $k_{tr}$ ) decreases in the  $0 < AlBr_3/I < 0.35$  mole ratio range. This supports the view that  $AlBr_3$  participates in the polymer chain-growth mechanism (V. I. Zubov, et al., 1967) and explains the decrease in the polymer mol. wt. with increase in  $AlBr_3$  concn. CPJR ]

REEL/FRAME  
19840923

7CB

va. Moscow. 186-204 (Russ). Polymeric catalysts: Bu, iso-Bu, isoamyl, PhCH<sub>2</sub> and X = Cl, Br, I, MeNO<sub>2</sub>-MeOH. I had high partial N-alkylation of poly(4-vinylpyridine) with the corresponding alkyl halide at 60-70° in 10:1 MeNO<sub>2</sub>-MeOH.



catalytic activity and selectivity in the hydrolysis of esters such as *p*-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>OAc. The active centers for the catalysis were the unsubstituted pyridine rings. The catalytic activity of an alkylated link was 10<sup>-3.5</sup>-10<sup>-1.5</sup> times greater than that of the simplest analog, 4-ethylpyridine. The kinetic behavior of I was similar to that of α-chymotrypsin. The kinetic parameters for each step of the hydrolysis were calc., and their dependence on the nature of

CC

REEL/FRAME  
19760474

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201130006-6

Acc. Nr:

AP0042509

Abstracting Service  
CHEMICAL ABST.

Ref. Code:

4-76  
UR0459

analogs of enzymes with ester-  
chromoph. T.S.

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201130006-6"

AP0042509

the substituents and macromol. dimensions were detd. The catalytic activity of I was a function of their shape in soln, and the type of solvent. The high catalytic activity of I was explained by the development of local hydrophobic cavities, each of which contains a nucleophilic group (pyridine ring) and is surrounded by hydrophobic substituents.

DBJR

L-D

$\frac{2}{2}$   
19760475



At.c. Nr:

AP0052504

Abstracting Service:  
CHEMICAL ABST. 5-70

Ref. Code:

4K0460

101153u Polymerization of methyl methacrylate in the presence of sulfuric and phosphoric acids. Vengennov, N. A.; Gorielova, V. R.; Zubov, V. P.; Kabanov, V. A.; Kargin, V. A. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). *Vysokomol. Soedin.*, Ser. B 1970, 12(1), 46-50 (Russ.). The photopolymerization of Me methacrylate (I) in the presence of  $H_2SO_4$  or  $H_3PO_4$  was studied at  $-10$  to  $+100^\circ$ . Polymn. in the  $I-H_2SO_4$  system was initiated by uv light ( $\lambda = 313$  m $\mu$ ) without a sensitizer, whereas polymn. in the  $I-H_3PO_4$  system was initiated by uv light without a sensitizer, as well as in the presence of benzil at  $\lambda = 365$  m $\mu$ . The polymn. rates and the mol. wts. of poly(Me methacrylate) (II) increased with increasing I-acid ratio, presumably due to a chem. activation of the monomer or the propagating macroradical by the acids. Max. polymn. rate and mol. wt. of II were obtained in the presence of 80%  $H_2SO_4$ , suggesting that the chain termination rate const. varied in the presence of  $H_2SO_4$ . The polymn. rate of I in the presence of either acid obeyed the Arrhenius equation; the activation energy was 4.9 kcal/mole (in the presence of  $H_2SO_4$ ) and 5.0 kcal/mole (in the presence of  $H_3PO_4$ ). The microtacticity of II was essentially independent of the polymn. temp., indicating that the acid bound to the reactive center participated in chain propagation. CKJR

REEL/FRAME  
19821145

1/2 013 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--ASCORBATE OXIDASE ACTIVITY OF A COMPLEX OF CU PRIME2 POSITIVE AND  
POLY(4,VINYLPYRIDINE) PARTIALLY ALKYLATED BY BROMOACETIC ACID -U-  
AUTHOR-(04)-VENGEROVA, N.A., KIRSH, YU.E., KABANOV, V.A., KARGIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSR 1970, 190(1), 131-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CATALYST ACTIVITY, COMPLEX COMPOUND, BROMINATED ORGANIC  
COMPOUND, OXIDATION, COPPER COMPLEX, PYRIDINE, ALKYLATION, ACETIC ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1985/1902 STEP NO--UR/0020/70/190/001/0131/0134  
CIRC ACCESSION NO--AT0101946  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0101946

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CATALYTIC ACTIVITY OF THE TITLE COMPLEX (I) IN THE OXIDN. OF ASCORBIC ACID (II) BY O WAS COMPARED WITH THAT OF CU PRIME2 POSITIVE ALONE AND ITS LOW MOL. WT. ANALOG, PYRIDINIUM BROMOACETATE (III). THE OXIDN. WAS STUDIED IN 0.02M ACETATE BUFFER AT PH 4.3 AND 25 PLUS OR MINUS 0.1DEGREE. IN THE PRESENCE OF I, THE OXIDN. RATE INCREASED, AND THE RATE WAS LESS EFFECTIVELY ACCELERATED BY THE INCREASING II CONC. THIS SUGGESTED THE FORMATION OF A MICHAELIS COMPLEX AS OBSD. IN ENZYME REACTIONS. COMPARISON OF THE I DISSOCN. CONST. ((2.5 PLUS OR MINUS 0.5) TIMES 10 PRIME NEGATIVE3) WITH THAT OF THE CU PRIME2 POSITIVE PYRIDINE COMPLEX INDICATED THAT CU PRIME2 POSITIVE IN I WAS ASSOCD. WITH THE UNALKYLATED PYRIDINE RINGS. III HAD NO EFFECT ON THE OXIDN. OF II IN THE PRESENCE OF CU PRIME2 POSITIVE. I WAS GREATER THAN 10 PRIME3 MORE ACTIVE THAN CU PRIME2 POSITIVE ALONE. SINCE INDOMETHYLATED POLY(4,VINYLPYRIDINE) (DEGREE OF SUBSTITUTION 70PERCENT) DID NOT CHANGE THE ACTIVITY OF CU PRIME2 POSITIVE, THE HO SUB2 CCH SUB2 GROUPS OF I WERE ALSO RESPONSIBLE FOR INCREASING THE CATALYTIC ACTIVITY. THE INCREASED ACTIVITY WAS THUS ASSUMED TO BE DUE TO THE FORMATION OF ACTIVE CAVITIES CONTG. PYRIDINE RINGS SURROUNDED BY HO SUB2 CCH SUB2 GROUPS IN THE MACROMOL. COILS OF I.

UNCLASSIFIED

1/2 034  
TITLE--ALDEHYDE AND KETONE POLYMERIZATION -U-  
AUTHOR--(03)--KABANOV, V.A., KARGIN, V.A., ZUBOV, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 134,862  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--06JAN70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ALDEHYDE, KETONE,  
CONDENSATION REACTION, MOLECULAR WEIGHT, SEMICONDUCTOR MATERIAL, ZINC  
CHLORIDE, ALUMINUM CHLORIDE, ORGANIC SEMICONDUCTOR, HEAT RESISTANT  
PLASTIC, CATALYTIC POLYMERIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
FRAME--1992/0128  
STEP NO--UR/0482/70/000/000/0000/0000

2/2 034  
CIRC ACCESSION NO--AA0111322  
ABSTRACT/EXTRACT--(U) GP-0- UNCLASSIFIED  
POLYCONDENSATION OF ALIPHATIC ALDEHYDES OR KETONES HAVING ALPHA H ATOMS,  
SUCH AS ACETONE OR ACH, AT 100-300DEGREES. TO OBTAIN HIGH MOL. WT.,  
HEAT RESISTANT POLYMERS WITH SEMICONDUCTOR PROPERTIES, GROUP II, III,  
IV, V, AND VIII METAL HALIDES, SUCH AS ZNCL SUB2 OR ALCL SUB3, WERE USED  
AS CATALYSTS AND WERE ADDED TO THE REACTION AS SOLNS. IN THE  
CORRESPONDING MONOMERS.

1/2 020 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--EFFECT OF THE FORMATION OF ION PAIRS ON RADICAL HOMO AND  
COPOLYMERIZATION OF 2,METHYL,5,VINYLPYRIDINE AND  
AUTHOR--(04)--GEORGYEVA, V.R., ZUBOV, V.P., KABANOV, V.A., KARGIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--DUKL. AKAD. NAUK SSSR 1970, 190(5), 1128-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--POLYMERIZATION, PYRIDINE, VINYL COMPOUND, SULFATE,  
HETEROCYCLIC NITROGEN COMPOUND, METHANOL, COMPLEX COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PRUXY REEL/FRA--1992/2013 STEP NO--UR/0020/70/190/005/1128/1131  
CIRC ACCESSION NO--AT0112966  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AT0112968

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HOMOPOLYMN. RATE (UPSILON) OF 1,2-DIMETHYL-5-VINYLPYRIDINIUM METHYL SULFATE (I) AT 50DEGREES IN H SUB2 O, MECH MIXTS. CONTG. (ME SUB2 CON) SUB2 N SUB2 IS FASTER THAN THAT OF THE HOMOPOLYMN. OF ITS FREE BASE (II) UNDER THE SAME CONDITIONS. THE INCREASE IN MECH CONCN. ABOVE 70PERCENT INCREASES THE UPSILON OF I SHARPLY. THE UPSILON OF II DECREASES LINEARLY WITH MECH CONCN. THE COPOLYMN. REACTIVITY RATIOS (R SUB1 FOR II AND R SUB2 FOR I) ALSO CHANGE WITH THE SOLVENT COMPN. (SOLVENT, R SUB1, AND R SUB2 GIVEN): MECH, 0.58, 0.98; 4:1 MECH, H SUB2 O, 0.54, 0.42; 1:1 MECH, H SUB2 O 0.30, 0.01. IN MECH (OR MECH RICH SOLNS.), A LARGE NO. OF THE GROWING MACRORADICALS FORMS IONIC PAIRS WITH MESO SUB4 PRIME NEGATIVE, WHICH DECREASES THE ELECTROSTATIC REPULSION BETWEEN THE PYRIDINE GROUPS IN THE TRANSITION COMPLEX III, I.E., INCREASES OF UPSILON OF I. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--INFLUENCE OF THE SOLVATION OF GROWING CHAINS ON THE MICROTACTICITY  
OF THE RESULTING POLYMER -U-  
AUTHOR--(04)-OSADA, YE., NEKRASOVA, N.A., PAPISOV, I.M., KABANOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. B 1970, 12(5), 324-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SOLVENT ACTION, NMR SPECTRUM, POLYMERIZATION, METHACRYLIC  
ACID, METHYL ETHER, ETHYLENE GLYCOL, METHOXY COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/0724 STEP NO--UR/0460/70/012/005/0324/0325  
CIRC ACCESSION NO--AP0136163  
UNCLASSIFIED



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SUB2 DME (II) AND POLYETHYLENE GLYCOL (III) CAUSED A DISCONTINUITY IN THE MICROTACTICITY OF THE POLY(METHACRYLIC ACID) FORMED, PRESUMABLY DUE TO A SOLVATION OF I MACRORADICALS WITH II OR III.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001      CIA-RDP86-00513R002201130006-6"

"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201130006-6

2/2 019  
CIRC ACCESSION NO--AP0136163  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. NMR SPECTRA SHOWED THAT POLYMN. OF

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201130006-6"

172 024  
UNCLASSIFIED  
PROCESSING DATE--27NOV70  
TITLE--MOLECULAR WEIGHTS AND MOLECULAR WEIGHT DISTRIBUTION OF THE PRODUCTS  
OF SPONTANEOUS POLYMERIZATION OF QUATERNARY SALTS OF 4-VINYLPYRIDINE AND  
AUTHOR--(03)-MUSTAFAYEV, M.I., ALIYEV, K.V., KABANOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 855-64  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MOLECULAR WEIGHT, VINYL COMPOUND, PYRIDINE, BROMINATED ORGANIC  
COMPOUND, KINETIC THEORY, MONOMER, POLYMERIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1496  
CIRC ACCESSION NO--AP0135157  
STEP NO--UR/0459/70/012/004/0855/0864  
UNCLASSIFIED